

# Data Storage

## Representing Numeric Values

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# Numeric Values

## Issues in storing numeric as

### Unicode

- ✓ Inefficient suppose you want to store 12, you would need 16 bits to do that
- ✓ 99 could be stored in 16 bits
- ✓ We will learn 16 bits can store 65,535 numeric values

# Numeric Values

## Binary

### ~~Notation~~

Using only digits 0 and 1.

- ✓ Lets discuss an example of representing numeric values using binary notation

# Example 3 bits (counting 0 to 7)

Numeric Value	Binary
0	000
1	001
2	010
3	011
4	100
5	101
6	110

# Adding one more bit

<b>Numeric</b>	<b>Binary</b>	<b>Numeric</b>	<b>Binary</b>
0	0000	8	1000
1	0001	9	1001
2	0010	10	1010
3	0011	11	1011
4	0100	12	1100
5	0101	13	1101
6	0110	14	1110
7	0111	15	1111

# Numeric Values Storage

## Binary Notation Variations

- ✓ Two's complement for storing whole numbers
- ✓ Floating point notation for fractional numbers

# Summary

## **Storing Numeric**

### **Values**

- ✓ Issues in Unicode for storing numeric values
- ✓ Binary notation